

State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**PRIMARY RECORD**

Primary # \_\_\_\_\_  
HRI # \_\_\_\_\_  
Trinomial \_\_\_\_\_  
NRHP Status Code \_\_\_\_\_

Other Listings \_\_\_\_\_  
Review Code \_\_\_\_\_ Reviewer \_\_\_\_\_ Date \_\_\_\_\_

Page 1 of 3 Resource name(s) or number (assigned by recorder) N-215

**P1. Other Identifier:** NASA/Army Aerodynamics Lab and 7' X 10' Wind Tunnel #1

**\*P2. Location:** ☒ Not for Publication ☐ Unrestricted

**\*a. County** Santa Clara

**\*b. USGS 7.5' Quad** San Francisco North, Calif. **Date:** 1995

**\*c. Address** 380 Durand Road

**City** Moffett Field

**Zip** 94035

**\*e. Other Locational Data:**

**\*P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries.)

Building N-215 is located on Durand Road and was built to serve one of two 7' X 10' wind tunnels. Building N-215 is a 15,570 sq. ft., two-story building with a concrete foundation, exposed concrete walls, and a flat roof. The building's massing is simple and ornamental detail is minimal. This building features simple, flat, horizontal concrete bands that run across each façade. The bands articulate the first and second floor. The building has three over three awning windows that are sandwiched between the concrete bands. The windows along the south façade are steel. The east and west façades have wood windows, and the north façade has a combination of steel and wood windows. The windows are grouped in sets of either three or four and are separated by concrete piers with grooves that align with the window mullions. The building's main entry has a simple concrete awning with rounded corners. The entry doors are aluminum storefront and are not original to the building. The east side of the building has been retrofitted with a steel and concrete stair. Some of the windows have been removed to accommodate new doors. The west side of the building serves as the main entry to the Ames Health Unit. A ramp has been added to accommodate this entry. A second steel stair has also been added to this side of this building. Building N-215 has an addition on the north side, thus allowing a connection to the wind tunnel. The wind tunnel has been altered several times and is made up of several distinct structures. All have steel framing; some have the framing exposed. An exterior entry into the wind tunnel is located on the east side of the building. This building appears to be in good condition.

**\*P3b. Resource Attributes:** (list attributes and codes) HP39— Other

**\*P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other

P5a. Photo



**P5b. Photo:** (view and date)

View of south façade, (8/12/05)

**\*P6. Date Constructed/Age and Sources:** 1941

**\*P7. Owner and Address:**  
United States of America as  
represented by National Aeronautics  
and Space Administration (NASA)

**\*P8. Recorded by:**  
Page & Turnbull, Inc.  
724 Pine Street  
San Francisco, CA 94108

**\*P9. Date Recorded:** 08/11/05

**\*P10. Survey Type:**  
Reconnaissance

**\*P11. Report Citation:** Lori Neff,  
*Department of Parks and Recreation*  
— *Historic Resources Inventory "Bldg.*  
*N215, Army Aerodynamics Lab/7 X*  
*10 Ft. Wind Tunnel,"* (1995).

**\*Attachments:** ☐ None ☐ Location Map ☐ Sketch Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record  
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record  
☐ Artifact Record ☐ Photograph Record ☐ Other (list)

**BUILDING, STRUCTURE, AND OBJECT RECORD**

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\*NRHP Status Code 5D3

\*Resource Name or # N-215

- B1. Historic name: 7-by-10-foot wind tunnel No. 1  
B2. Common name: Army Aeromechanics Lab/7x10 ft Wind Tunnel; Ames Research Center Health Unit/Medical Clinic  
B3. Original Use: Wind Tunnel, offices, and research facility B4. Present use: Wind Tunnel, offices, clinic, and research facility  
\*B5. **Architectural Style:** Moderne with 20<sup>th</sup>-Century Industrial influences  
\*B6. **Construction History:** (Construction date, alterations, and date of alterations)  
1941 – Date of Construction; 1945 – Addition; 1965 – Extensive interior alterations; 1981 - Addition

\*B7. **Moved?** ☒No ☐Yes ☐Unknown **Date:** \_\_\_\_\_ **Original Location:** \_\_\_\_\_

\*B8. **Related Features:**

Significant architectural features include the concrete exterior, steel-sash windows, and concrete entry canopy.

B9a. Architect: National Advisory Committee for Aeronautics (NACA) Engineers

b. Builder:

\*B10. **Significance:** Theme Post-War Science and Space Exploration Area NASA Ames Research Center  
Period of Significance 1940-1958 Property Type Research Facility/Wind Tunnel Applicable Criteria 1 & 3

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity)  
Building N-215 is one of two 7x10 ft wind tunnels at the Ames Research Center (the other is in Building N-216). It houses closed circuit, low speed, and pressurized wind tunnels and the Ames Research Center Health Unit/Medical Clinic. It was one of several research and support buildings built between 1940 and 1958. Founded in 1939, the Ames Research Center was the second aeronautic research facility built for the National Advisory Committee for Aeronautics (NACA). This research center was vital in the development of the field of aeronautical research and science. Along with new research facilities, such as wind tunnels and testing facilities, several support buildings were constructed for the staff, including libraries, offices, manufacturing facilities, and laboratories. Patterned after a wind tunnel at the NASA Langley Research Center, this wind tunnel was invaluable during the war effort for the research conducted by the military. At this time, the research and support buildings at Ames were mostly rendered in an architectural vocabulary, which allowed for a variety of uses and a cohesive campus setting. These buildings were most often, one and two stories in height with concrete structural systems, unpainted concrete exteriors (with scored concrete detailing), and steel or wood-sash awning or hopper windows. They expressed Moderne architectural details with their scored exteriors, tripartite concrete panels (located between windows and doors), concrete entry canopies, and rectilinear configurations. Additionally, these buildings exhibited influences of 20<sup>th</sup>-Century Industrial architecture with their smooth, concrete exteriors and steel-sash awning and hopper windows. Today, the exterior of this building retains more historical significance than the interior, which has been altered over time. This building possesses integrity of location, design, setting, materials, workmanship, feeling, and association.

For a description of the wind tunnels, See Continuation Sheets.

B11. Additional Resource Attributes: (List attributes and codes) (HP39) -- Research and Development Building; (HP39) -- Wind Tunnel

\*B12. **References:**

- Lori Neff, *Department of Parks and Recreation – Historic Resources Inventory “Bldg. N215, Army Aeromechanics Lab/7 X 10 Wind Tunnel,”* (1995).
- Edwin Hartman, *Adventures in Research: A History of Ames Research Center, 1940 – 1965* (NASA SP-4302, 1970).
- Elizabeth A. Muenger, *Searching the Horizon: A History of Ames Research Center, 1940 – 1976* (NASA SP-4304, 1985).
- Glenn Burgos, *Atmosphere of Freedom: Sixty Years at the NASA Ames Research Center* (NASA SP-4314, 2000).

B13. **Remarks:**

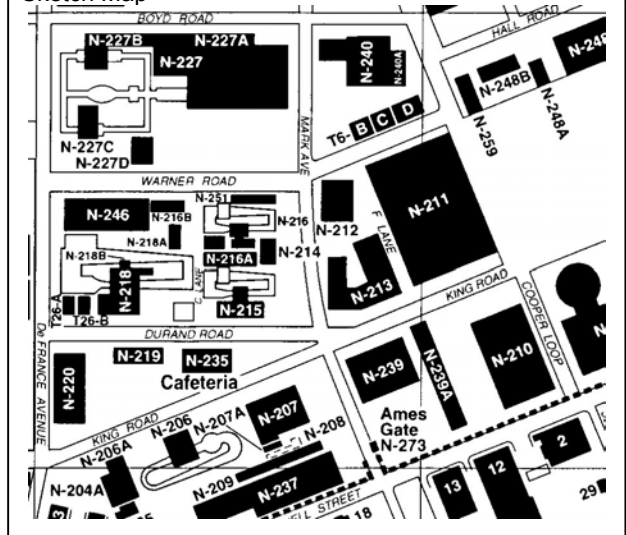
In 1995, Section 110 survey documentation of the NASA Ames Research Center was submitted to the California State Historic Preservation Office (SHPO).

\*B14. **Evaluator:** Rich Sucre, Page & Turnbull, Inc.  
724 Pine Street, San Francisco, CA 94108

\*Date of Evaluation: 10/18/2005

(This space reserved for official comments.)

Sketch Map



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Resource Name or # (Assigned by recorder)

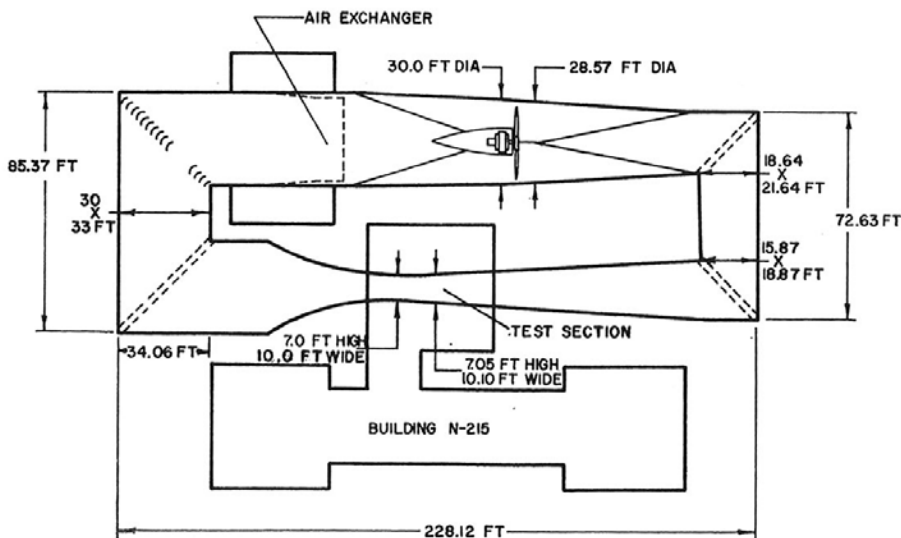
\*Recorded by Planning Department – City and County of San Francisco

\*Date

☒ Continuation ☐ Update

**\*B10. Significance (cont'd):**

Past testing includes research in support of low speed aerodynamics, using small scale aircraft and rotorcraft and also space vehicle re-entry bodey models. Tunnel speeds up to 250mph are achievable; max. test model is 7-ft height, 10-ft wide and 16-ft long. Reynolds #  $2-3 \times 10^6$  max.



**DESCRIPTION**

The 7-ft x 10-ft wind tunnel is closed-circuit, low-speed, and atmospheric. Power is supplied by a variable-speed 1800-hp motor which drives a fixed-pitch fan. Test setups are quite variable to allow installation of a wide variety of 2- and 3-dimensional models. Two-dimensional models span the tunnel height with supports at both floor and ceiling; continuous angle-of-attack variation from 0° to 180° is available. Three-dimensional models are usually supported on a single or a pair of vertical struts, each with a trailing link which provides remote control in pitch. Motion in the yaw direction is available through 360°. Various model motors are available. A 100-kW, 400-cycle, variable-frequency drive provides power for model motors. An external, 6-component balance system measures model forces and moments.

**CHARACTERISTICS**

Reynolds Number, per ft:	$2.3 \times 10^6$ , max
Stagnation Pressure, atm:	1.0
Temperature:	Not controlled, depends on ambient air temperature (about 580°R, max)
Test-Section Height, ft:	7.0
Test-Section Width, ft:	10.0
Test-Section Length, ft:	16.0
Test-Section Doors, ft:	Side Access: 6.3 high x 10.0 wide Overhead: 4.8 diameter Personnel: 6.4 x 2.5
Tunnel Airspeed:	Continuously variable up to 250 mph (220 knots)

CURRENT STATUS

INACTIVE